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(71) Applicant (for all designated States except US): **INTER-CONTINENTAL TRAVEL SERVICES, INC.** [US/US];  
Suite 200, 5503 Green Valley Drive, Bloomington, MN  
55437 (US).

(72) Inventors; and

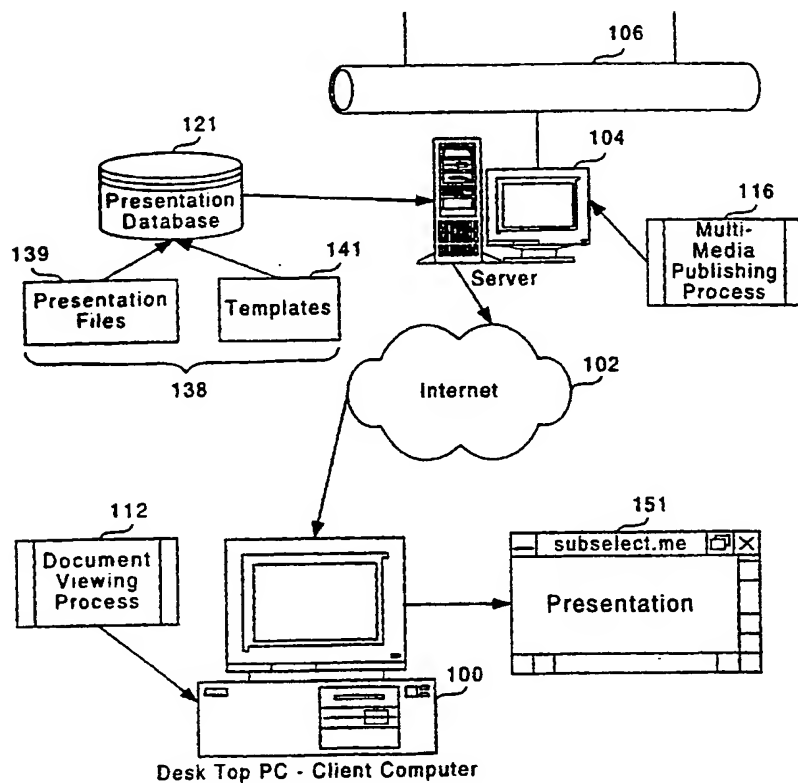
(75) Inventors/Applicants (for US only): **WELCH, Kenneth**,  
W., Jr. [US/US]; 6502 Regency Lane, Eden Prairie, MN  
55344 (US). **DONCHEZ, Jeffrey, T.** [US/US]; 5812  
Katrine Court, Charlotte, NC 28208 (US). **GAITANARIS,**  
Christos [CA/CA]; 1780 Bloor Street East, Missis-  
sagua, Ontario L4X 1T1 (CA). **JONES-ZIAMA, Madea**  
[LR/US]; 5420 Venado Street, Charlotte, NC 28215 (US).  
**PASKEL, Arnold, S., III** [US/US]; 3209 C Heathstead  
Place, Charlotte, NC 28220 (US).

(74) Agents: **HAMRICK, Claude, A., S. et al.**; Oppenheimer  
Wolff & Donnelly LLP, 1400 Page Mill Road, Palo Alto,  
CA 94304 (US).

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(54) Title: **SYSTEM FOR AUTOMATED MULTIMEDIA PRESENTATION UTILIZING PRESENTATION TEMPLATES**



(57) Abstract: A coordinated multi-media presentation (151) is provided by utilizing a system and process which merges presentation files with at least one presentation template. The presentation template (141) is a predetermined outline for a portion of the presentation which has taken into account all pre-loading and processing necessary to achieve a seamless display of graphical images, audio files, and/or video displays. Further, the presentation file (139) has been prepared to provide coordination of all timing and pre-loading for the seamless display of the multi-media presentation. The coordinated use of the template and its associated file from a presentation database (121) ensures against unnecessary delays during processing. File size control along with pre-coordination allows the multi-media presentation to be displayed within a browser on a computer (100) connected to the internet (102).



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**SYSTEM FOR AUTOMATED MULTIMEDIA PRESENTATION UTILIZING PRESENTATION TEMPLATES****REFERENCE TO RELATED APPLICATIONS**

This application is related to application entitled "A System and Method For Publishing Promotional Information Including Multi-Media Presentations Over A Computer Network" SN 09/438,626, Filed on November 12, 1999; to application entitled "A System and Method For Publishing Graphical Promotional Information For A Collection Of Vendors From A Common Site", SN 09/439,143 Filed on November 12, 1999; to application entitled "System For Automated Multi-Media Presentation", SN 09/439,147 Filed on November 12, 1999; to application entitled "A Method and Apparatus For Searching A Database For Information Including Promotional Information", SN 09/438,889, Filed on November 12, 1999; to application entitled "System and Process For The Development of Graphical Promotional Materials" SN 09/438,893, Filed on November 12, 1999; and to application entitled "A System And Method For Automatically Presenting A Sequence Of Promotional Images With Interactive Features" SN 09/438,892 Filed on November 12, 1999.

**BACKGROUND OF THE INVENTION****FIELD OF THE INVENTION**

The present invention relates generally to the delivery of a multi-media presentation over the Internet and relates particularly to delivering a multi-media presentation over a network such as the Internet using a sequence of images and sound clips which when viewed can be shown in an uninterrupted or continuous fashion without the need for any additional plug-ins.

**Brief Description of Related Art**

Delivering a multi-media presentation over a network such as the Internet is highly desirable, especially in the context of advertising products or services. As can be appreciated, the ability to combine high quality graphics, video, and related audio to potential customers creates a very powerful marketing tool. It is critical however that these presentations be as impressive as possible to potential customers. Any flaws in the presentation (either in the content or the playing process of the presentation) could be very detrimental to the advertising goals. Conversely, if the presentation plays smoothly, contains eye catching graphics and/or video, and includes complimenting audio, a positive and lasting impression will be made with potential customers.

Delivering such a presentation can be a difficult problem due largely to the size of the images used in a typical multi-media presentation and the typical speeds of a connection between a server on the network and the client. Commonly, a connection between server and client on the Internet runs at 28.8 Kbits/sec or 56 Kbits/sec. On the other hand, image files used in a multi-media presentation can be several megabytes in size. For example, a typical frame in a multi-media presentation might be 320 by 240 8-bit pixels for a total of 614,400 bits per frame. To create a presentation having the characteristics of full-motion video, a rate of about 15 frames per second must be sustained at the viewing program. This means that each frame must be available in 67 milliseconds, i.e., the rate must be about 9.2 Megabits per second or more. Given a connection speed of 56 Kbits per second it would take about 11 seconds to send a single frame. Such a scheme is unworkable over the Internet absent some special connection between the client and the server. Moreover, additional problems are presented when a synchronized audio track accompanies the video presentation.

Currently, the response to the video rate problem is to reduce the size of the frames that need to be transmitted by using compression techniques. One standard that is followed is the JPEG standard. In this standard, the input is divided into blocks of pixels and each block is run through a series of transformations to create a compressed output frame. Compression ratios, i.e., the ratio of the input size to the output size, are in the range of about 20:1 for a fixed image. This scheme reduces the size of a frame from 614,400 bits to about 31K bits. At 56 Kbits/sec, a frame could be transmitted in about one-half second. This rate is still too low for a 15 frame-per-second presentation and the problem of presenting a concurrent sound track is not addressed by the standard.

Another scheme used to address this problem is to use the MPEG standard. This standard can compress both video and audio and includes a scheme for synchronizing the compressed and transmitted video and audio streams at the receiver. In a software-based MPEG video compression, a higher compression ratio is achieved by taking advantage of spatial and temporal redundancy of a moving picture. However, while the MPEG-1 can achieve high compression ratios, so that a moving picture can be played across a 56 Kbit connection, the use of the standard gives poor results because the compression scheme is lossy (meaning that the decompressed video is not the same as the original video) and the frame rate or source image quality must be reduced to meet the line speed requirement. A further complication is that a software decoder must be used on the client computer to decompress the video stream. The extra software module, or plug-in, must be downloaded and installed before the video stream can be viewed. The MPEG-2 standard offers some improvements in quality at the expense of higher

data rates and is mainly designed for commercial broadcast applications instead of Web-based applications.

As mentioned, a complication encountered when trying to produce video presentations is the need for additional software modules, or plug-ins. Although these software modules achieve the required functionality, their use is cumbersome and slow. The user is required to stop or pause their activities, and undergo an entirely separate and time-consuming process of downloading these additional software modules. As can be easily understood, users can be frustrated by this process. This is particularly true if the user is intending to view a continuous stream of graphical images, or be entertained by a sequence of images and audio clips.

Even when additional software modules are utilized, the loading and processing of images is oftentimes cumbersome and slow. It is not uncommon for a computer user to have their computer pause or stop and to be presented with a display screen indicating that they should wait while some document or file is being loaded. Once again, this is a disruption to the users who are now forced to wait for some activity. This type of delay is completely unacceptable when putting on multi-media presentations -- especially marketing or advertising presentations. If a company or individual is attempting to market or sell products, it is essential that their presentations go seamlessly and smoothly in order to make a good impression on potential customers.

Therefore, there is a need for high-quality full-motion video multi-media presentations that are deliverable over a computer system (e.g. the Internet) using current connection speeds between the server and the client, but which do not require additional software modules on the client to decompress the image stream.

### **Summary of the Invention**

An apparatus and method according to the present invention answers the above need. An apparatus according to the present invention provides a system for assembling a sequence of viewable documents, where each document has a view-time parameter for setting the time during which a document is viewable and a document replacement parameter for naming the next document in the sequence. Each document uses a timer to determine when the view time has expired and a document replacement function operating on the document replacement parameter to replace the viewable document with the next document. Each document may use one or more image files and one or more audio files in the presentation. Upon delivering the first document in the sequence to a viewer program on the client computer system, successive documents are delivered resulting in a coordinated multi-media presentation.

Each of the presentations of the present invention are made up of numerous documents, each of which is prepared using a predetermined template. These templates are simply incomplete documents which are missing specific parameters for the presentation. To create an actual presentation, this template is merged with a presentation file which includes presentation detail information (specific parameters for the presentation). This presentation detail information includes the identification of image files and sound files, along with specific timing and sequence parameters for the presentation. Each of the images and sound files for display in the documents must fall within a predetermined range of file size parameters to ensure appropriate operation. The templates have been carefully established to provide proper tools for smooth presentation by coordinating appropriate pre-loading and pre-caching of the images files or sound files which will be subsequently presented. Similarly, the presentation data files have been carefully put together so that the timing and sequencing will allow for a very smooth and coordinated presentation. In this way, the user (or potential customer) will not be presented with delays or stoppages during the playing of a presentation while the system waits for files to load. Additionally, all of the documents will be pre-configured for easy display without the need for additional software. Each of these documents are simply displayed using a common document viewer such as Internet Explorer from Microsoft or Netscape Navigator from the Netscape Corporation.

Once completed, each presentation typically loops back to its starting point, thus returning the user to the document being viewed prior to the presentation. That is, a user will simply launch the presentation from a document on the Internet, (or any network) and upon completion of the presentation will be returned to that same document. Alternatively, the advertiser may wish to route the user back to a predetermined location. For example, the user may be routed back to the advertiser's website. Alternatively, the advertiser may wish to have another presentation launched upon the completion of the first presentation, thus creating a chain of multi-media presentations which can be viewed by the potential customer.

During the playing of a presentation, it may be necessary for a potential customer to pause or stop the presentation at various points in time. Consequently, the present invention provides that function or feature to the user. This is accomplished by adding appropriate pointers which track progress through a presentation. These pointers can also provide useful information to the advertiser regarding how its presentations are being viewed. For example, these pointers can track how far users get through their presentations before they possibly stop or prematurely terminate the presentations. This information allows advertisers to analyze their advertising activities and make determinations regarding efficiency and effectiveness.

An advantage of the present invention is that a high quality promotional presentation can be delivered to a client computer system from a server on the Internet using standard connection speeds. This means that the presentation can reach more users because the demands on the client computer and its connection to the Internet are low. Further, these connections are common to most existing client computers. Another advantage is that the client computer needs no special software to view the presentation. A standard viewing program such as Microsoft's Internet Explorer or Netscape's Navigator is all that is required. This means that the reach of the promotional presentation is greater because many client computers do not have the ancillary software nor the computing power to decode the complex encoding schemes of MPEG-1 or 2.

These and other advantages and versions of the invention are described below.

### **Brief Description of the Drawings**

These and other features, aspects and advantages of the present invention will become better understood with regard to the following description, appended claims, and accompanying drawings where:

FIG. 1 shows a typical system configuration in which the present invention operates;

FIG. 1B shows a computer system representative of a server or client computer as shown in Fig. 1A;

FIG. 2 is a top level flow chart showing the basic process used by the present invention;

FIG. 3 displays the conceptual content of a template, as used by the system of the present invention;

FIG. 4A-4C is a flow chart showing the steps in presenting one representative presentation of the present invention;

FIG. 5 shows a block diagram of the multi-media publishing process;

FIG. 6A-6B show a representative multi-media presentation in accordance with the present invention; and

FIG. 7 show a representative presentation timeline for the multi-media presentation shown in FIG. 6, and in FIG. 4A-C.

### **Detailed Description of Preferred Embodiments**

The present invention provides a system and method for preparing automated multi-media presentations which can provide a wide variety of information to a user or potential customer. As can be expected, these presentations are very effective methods of communicating information in an entertaining and interesting format. The Internet provides a convenient and effective method for widely distributing these presentations, thus disseminating large amounts of information in a focused and targeted manner. For example, merchants could put together these presentations to display product offerings and advantages to anyone using a client computer on the Internet. The system and method of this invention is carefully configured to provide these presentations in an automated and seamless manner. One important characteristic of this automated presentation is its ability to be played without the need for additional software modules. Consequently, once the presentation is invoked, the user does not have to pause or wait for additional software to be loaded onto the client computer in order to view the remainder of the presentation.

A typical system configuration in which the present invention operates is shown in FIG. 1A. The configuration in FIG. 1A is a client-server configuration typically encountered when the Internet provides the communications link between the client and the server. In FIG. 1A, client computer system 100 communicates over the Internet 102 with server 104. Server 104 may in turn be connected over a local area network LAN 106 to other servers (not shown). Each of the servers 104, connected to the LAN can be given different functions to carry out or all of the servers can share in carrying out all of the functions.

Client computer system 100 typically has the function of providing an interface to the users of such a system configuration. One important interface function is that of providing a document viewing process 112 to the user. In the context of the Internet, the document viewing process is typically carried out by a browser program, such as Internet Explorer or Netscape Navigator. The job of the browser on the client machine is to obtain and interpret documents, in particular HTML or similar documents, for the user.

Server computer system 104 is shown in FIG. 1 as having the functions of providing a multi-media publishing process 116. Thus, server 104 in FIG. 1 publishes multimedia presentations for the client computer system 100. These processes are discussed in more detail below.

Server system 104 acts as a publishing system for purposes of the present invention. When publishing presentations, server system 104 calls upon a database 121 to supply any files such as multi-media files 138 needed in the multi-media publishing process 116. These multimedia files will include presentation files 139 and template files 141.



At the request of the document viewing process 112, the client computer system requests a document from server system 104 which then publishes the document to the client machine. In this context, publishing a document includes the creation of the document as well as the delivering of the document to the requester. Thus, when a user at the client machine causes the document viewing process, e.g., a browser, to request a specific presentation, that request is carried over the Internet 102 and is received by server system 104. Server system 104 also invokes its multimedia publishing process 116 to create the presentation requested. This process 116 requests certain files from the presentation file server system 121 in order to compose the presentation and when completed the presentation, (e.g. presentation 151), is delivered over the Internet 102 to viewing process 112 at the client computer system 100.

As stated above, the system configuration in FIG. 1 is a typical configuration in which the present invention operates. Many other configurations are possible including ones in which the server systems cooperate to carry out any of the processes which appear to be dedicated to a particular server. Furthermore, only a client-server relationship need exist between the client computer system 100 and the servers 104. While communication between the client and the server is shown over the Internet 102, this is not a necessary requirement of the present invention. However, it is preferred in the present invention that client and server communicate over the Internet.

FIG. 1B shows a block diagram of a computer system representative of a server or client computer as shown in FIG. 1A. Connected to local bus 156 are a processing unit 160, memory unit 162, monitor and keyboard unit 164, storage device interface unit for operating data storage device 158, and communications interface unit 168. Typically, memory unit 162 holds an operating system and applications programs for execution by the processing unit 160. In the course of processing, processing unit 160 makes accesses to the data storage device 158 and to the communications interface to send or receive data over a network to which the computer system is connected. Users interact with the system via monitor and keyboard interface 164.

Referring now to FIG. 2, there is shown a top level flow chart outlining the process of preparing and presenting a multi-media presentation. This presentation is typically launched from some starting point on either a network or the Internet. The document viewing process 112 typically will communicate with the media publishing process 116 to initiate a presentation. This initiation or request for the start of a multi-media presentation is shown in step 211 of FIG. 2. Next, in step 213, the multi-media publishing process 116 asks the client to input the client connection speed or client information. To accomplish this inquiry, the multi-media publishing process 116 communicates with the document viewing process 112 to allow the client user to

enter its connection speed. At this point, the connection speed is entered or supplied by the client. Next, the process moves to step 219 wherein the desired presentation file is located and any related presentation templates are located. It is also worth noting that the process will advance to step 219 if the multi-media publishing process 116 determines that the connection speed is already known in step 213.

As will be further outlined below, each presentation includes at least one template and a presentation file. Generally speaking, this presentation template provides a predetermined structure or outline for parts of the presentation that will be made. Similarly, the presentation file will include all the presentation detail information for a particular presentation including image files, sound files, sequence instructions, and timing parameters which will make up the ultimate presentation. The timing and sequence parameter present in the presentation file have been carefully calculated for the smooth playing of the presentation, when used along with the appropriate template.

In step 221, the multi-media publishing process 116 merges the presentation template and the presentation file to create a viewable presentation. This could involve the merging of a single template with the appropriate presentation data file. Alternatively, the merging of these two elements may require many iterations. In step 223, the viewable presentation is assembled and passed along to the document viewing process. The assembled viewable presentation, or layout for the presentation, is then simply interpreted by the document viewing process 112 and presented on the client computer 100. After the presentation has been completed, the client is directed back to a predetermined location in step 225. This predetermined location may include an identified address or website, including the advertiser's website. Alternatively, the media publishing process may simply return the user to the point which originated the presentation.

In one embodiment of the present invention, each of these multi-media presentations are launched from an advertising website. In this website, advertisers are provided with advertising space for a graphical promotional image. Associated with this graphical, promotional advertising space is a presentation initiator. By selecting this initiator, the user is given the opportunity to launch the multi-media presentation which then provides additional information regarding the advertiser's products or services. It is understood that this multi-media presentation, however, could be launched from virtually any place by appropriate coordination and programming of a viewable document presented on document viewing process 112.

Referring now to FIG. 3, there is shown a conceptual representation of a presentation layout 171 which includes the use of template 141. As previously mentioned, templates 141 include the framework or structure for creating each multi-media presentation. Each template is

part of an incomplete HTML document which has missing parameter information. As can be appreciated, a standardized template which coordinates the timing and sequencing of predetermined portions of a particular presentation is a valuable tool. That is, since the timing is worked out to appropriately display and pre-load portions of a particular presentation, this same calculated timing can be easily used in other portions of the presentation, or in other presentations.

Initially, it is worth noting that each template 141 will draw all presentation detail, or specific presentation information from a related presentation file. Each presentation file will set forth the actual content, timing, sequence and all functional parameters. While the term "file" is used, it is contemplated that the presentation file could easily be a distributed database or any other typical storage structure.

Referring specifically to FIG. 3, the process for displaying the completed presentation is conceptually shown. The actual presentation includes the result of the merger of presentation templates and the presentation database or presentation data files. The presentation starts with the creation of the first document by first merging frame configuration data 311 with a frame setting template 313. Frame configuration data 311 is typically part of the presentation data file which will be stored in mass data storage 315. Frame configuration data 311 is understood to be simply a subset of the overall presentation data file or a presentation database. As can be appreciated, each presentation will have its own presentation data file which coordinates and controls the overall layout of the presentation. This presentation data file is intended to cooperate with a plurality of templates in order to create all documents which make up the ultimate presentation. The created instruction set can then be provided to the document viewing process 112 for setting up the actual frame makeup for the first frame. For example, the frame may be configured to accommodate the display of a single image. Alternatively, split or nested frames could be used. The frame setting template 311 also has provisions to identify the documents which will fill the created frames, identified in FIG. 3 as a replacement pointer. And lastly, included within frame setting template 311 is a set of image caching instructions or pre-loading instructions 319. Image caching instructions 319 include background instructions for this document to go and pre-load other images into the client computer's cache memory. These images are retrieved from mass storage 315 for use in future frames. Following the setting functions of the frame setting template 313, the document creation template 321 is used for the further development of the viewable documents. The process of assembling a document for viewing can be fairly streamlined using document creation template 321. Typically, this document template can cooperate with all necessary files and data from the presentation data file

to create the viewable document. Specifically, associated image files 323 and sound files 325 are used to put together the various image displays. Image files 323 and sound files 325 have been pre-loaded to accommodate the smooth flow and transition of the presentation. In this representative layout 171, image caching instructions 319 from frame setting template 313 have already provided appropriate coordination for the pre-loading of image and sound files 323 and 325. As shown, document creation template 321 also includes provision to create image timing instructions which indicate exactly how long the particular images will be displayed. These instructions will utilize various timing parameters that are included in the presentation data files. Furthermore, document sequence instruction 327 are taken care of by this template to ensure the proper sequencing of documents in the presentation. More specifically, this will provide an indication of which document shall replace the viewable document presently being displayed by the code credit using document creation template 321. As with the timing instructions, sequence instructions are created using appropriate parameters from the presentation file. Again, image caching instructions 329 were used for pre-loading of image and sound files from mass storage 315 which are utilized at a later date.

In the present situation depicted in Fig. 3, the frame configuration of the documented viewer does not need to be changed for the next document. However, the actual documents will be changed. Thus, the document creation template is once again invoked, using a second document creation template 331. Again, this document template utilizes image files 333 and sound files 335 to create the instructions for a viewable document. Provisions are also made for the generation of timing instructions, and document sequence instructions utilizing the template and the presentation file. Further, second document creation template 333 could contain image caching instructions 339 which would coordinate the retrieval of additional images and sound files for later use.

This is continued until an end document is reached. Again, an end document creation template 381 is utilized which will coordinate with image files 383 and sound files 385 to create this end document. The timing parameters again indicate how long this particular document will be displayed. Similarly, appropriate sequence data is necessary to instruct the presentation where it should proceed upon termination. Finally, a return destination is achieved in return 391.

As previously mentioned, the presentation file itself, which is utilized to assemble each presentation, will coordinate the files to be used and the actual timing data for each of these presentations. That is, the presentation file will provide the actual file names for each image file, sound file, along with all necessary sequence and timing values.

It is understood that the illustration of Figure 3 is meant to show a conceptual overview of one embodiment of the present invention. The sequence of these various templates as instituted or utilized, could drastically change depending on the various configuration of the presentation. For example, if multiple frames are used, two of the document creation templates could be invoked in parallel cause multiple displaying of images in the multiple frames. Also, the sequence of steps can be altered to create a presentation which changes its configuration constantly while continuing to have a smooth flow of images and sound being played for the user.

FIGs. 4A-4C display one example flow chart for a representative multi-media presentation. This representative flow chart also indicates how the various parameters of the presentation may easily be changed. Note that further details of this same presentation are discussed in relation to FIGs. 6A-B & 7. These figures and the related discussion set forth how files and data are transferred, along with discussing the timing control of the displays.

Referring now to FIG. 4A, this multi-media presentation begins in step 401 wherein the initial image is displayed and the user is polled to determine their connection speed. This display image will elicit a necessary response in order to proceed. No timing information is necessary for this display as the system will simply wait for a response. Next, Display 02 presented in step 403 wherein multiple steps simultaneously occur. More specifically, appropriate instructions are sent to the document viewing process 112 to display an introductory document while further processing is done to develop the presentation layout. Similarly, the corresponding music is played for this Display. At this time, a presentation timer is started in step 404 to track the presentation time of the presentation. If the user chooses to prematurely terminate the presentation, this timer can provide information about how long the presentation was played. Specifically, information can be kept regarding the viewer's actions when viewing the presentations. This can provide useful information when analyzing the effectiveness of the particular presentation.

Following the time-out of Display 02, the process then moves to step 405 and step 407 for appropriate configuration and pre-load instructions. More specifically, in step 405 the viewable and unviewable portions of the display will be configured for the entire presentation. In this step the display itself may be broken into various frames, some of which are viewable and some of which are not. The advantage of having invisible frames is their ability to carry on tasks throughout the entire presentation. For example, one invisible frame could carry sound instructions for an entire presentation, such as continuous music running throughout. Similarly the presentation timer may operate within one of these invisible frames. Alternatively, certain

pre-fetching routines could be carried on in the background of these invisible frames. Other than the above mentioned timing function, these specific activities are not undertaken in the following discussions related to FIGs 4A-C. Each of the aforementioned features are certainly many possibilities or capability of the presentation system of the present invention.

5 In step 407, appropriate instructions are provided to pre-load music and image information which will be further used in future documents. The identification of these images and music files will be provided by a presentation data file previously mentioned.

10 Once the viewable/invisible display setup has been determined, the process moves on to step 409 wherein further modifications are made to the display. In this particular embodiment, the actual display is further broken down, in step 409, to include a base frame and nested frame on the right-hand side. Appropriate documents will then be called to fill these frames in steps 411, and 413. That is, a separate viewable document is then opened in the base frame in step 411, while another separate viewable document is presented to the nested frame in step 413. Concurrently, pre-load instructions are issued in step 415 for retrieving and storing of files that  
15 will be needed in the future.

As can be appreciated, the presentation of a viewable document in step 411 almost instantaneously creates the playing of appropriate sound files in step 417 and a playing of appropriate image files in step 419. Also, appropriate image files are played in the nested frame, as shown in step 421. It is understood that music is used generically here to indicate any audio  
20 files which may be appropriate. This includes files which simply call for silence. In some cases this may not be considered as typical "music," however that term is not meant to be limiting as used herein. Similarly, the term "image" is meant to be used generically to indicate any graphical display which could include photography, graphical artistic presentations, text messages, or video signals.

25 In the exemplary presentation shown in FIG. 4, the display is next reconfigured into a single frame in step 423. Next, a document is presented to the single frame in step 425 which subsequently causes the playing of audio per the sound files in step 427 and the playing of images per the image files in step 429. As is understood, there are certain timing parameters associated with each of these displays which control the time which they are allowed to persist  
30 in the document viewing process.

Next, a new display is necessary which has a different configuration. Thus, step 431 causes the reconfiguration of the viewable display in the document viewing process. In this particular embodiment, this newly reconfigured display has a base frame and a nested frame on the left side. A first document is presented to the base frame in step 433 while a second

document is presented to the nested frame in step 435. The document presented to the base frame in step 433 concurrently causes multiple activities to be undertaken. Images are displayed as directed by the image files in step 437, while audio is played in step 439 per the particular sound files. Also, pre-load instructions are provided in step 441 causing a retrieval and caching of image and sound files which will be used by later documents in the presentation.

It is worth noting that in each particular display, there is one particular document which will control the ultimate display. The document viewer is set up such that images will persist in the prescribed display area (display frame) until they are replaced. Typically, one document will contain the timing parameters which control the particular display. Once the prescribed time has elapsed, that controlling document will call for appropriate document replacement, and possibly the replacement of all documents currently being displayed. In examples provided above, entire viewable displays have been reconfigured, thus, eliminating the existence of any viewable document.

Referring again to FIG. 4B, the process of the present invention moves on to again reconfigure the viewable display into a single frame in step 445. Next, a document is presented to the single frame in step 447, thus causing the playing of images per image files in step 449 and playing of audio per sound files in step 451.

Following the playing of appropriate images and sound for that particular display, the presentation outlined in FIG. 4A-4C next moves on to reconfigure the viewable display once again. More specifically, step 453 again creates a nested display which includes a base frame and a nested frame on the right side. Simultaneously, steps 455 and 457 present documents to the base frame and the nested frame respectively. Also, pre-load instructions are again issued for the retrieval of files in step 459. As outlined above, the presentation of the various documents results in playing of image and audio information. Specifically, audio is played in the base frame as shown in step 461 while images are played in step 463. Similarly, images are played in the nested frame as shown in step 465.

Again, the presentation of the present invention now transitions to another display by first reconfiguring the viewable display in step 467. Similar to the process described above, this reconfiguration then causes the virtually simultaneous presentation of a first document in the base frame in step 469 and a presentation of a second document for the nested frame in step 471. Steps 473, 475 and 477 all provide for the respective playing of audio and images per the appropriate sound or image files. Following the time-out of the control document in this particular display, this portion of the presentation is completed.

Next, in step 479 the viewable display is once again reconfigured into a single frame. Step 481 presents a document to this single frame causing playing of images and audio in steps 483 and 485, respectively. Again, the presentation calls for another display at this point in time. This display is begun in step 487 where a nested frame is again created. Simultaneously,  
5 appropriate documents are presented to the nested frame in step 489, and to a base frame in step 491.

In this latest set up and display, the configuration is changed slightly from that of the configuration above. As can be seen, images and sound are both played in the nested frame in steps 493 and 495. Similarly, an image is first played in the base frame in step 497. This use of  
10 the nested frame is different from the displays set out above -- this particular series of displays is configured to allow continuous playing of music, and to maintain a consistent display in the nested frame, while changing the display in the base frame. Consequently, in step 499 a new document is presented to the base frame, causing an appropriate image to be played in step 501. As noted, the document presented to the nested frame in step 489 is not replaced, and thus is  
15 allowed to persist throughout this entire series of displays. Finally, once the base frame image, being played via step 501 is completed, the presentation of this embodiment is returned to its point of origin in step 503.

It will be understood that the term "display", as used above, is used to connote a consistent configuration of the client computer screen. Thus, each display shown above  
20 involves its own set up and then playing of consistent images within that set up.

While the process outlined above has variations on the development and configuration of the various frames on the client computer, and the documents contained therein, this is merely an example of one possibility. As should be clear, many variations are possible to the presentation.

The flow chart of FIGs. 4A-4C is meant to indicate exactly how variations on a multi-media presentation may be made. The actual operation may be more easily understood by comparing the flow chart of FIGs. 4A-4C with the representative presentation process shown in FIGs. 6A and B. An example timing chart is shown below in FIG. 7. For convenience, reference to the actual files discussed in relation to Fig 6A-6B are included on Fig. 4A-4C  
25

FIG. 5 shows a block diagram of the multi-media publishing process. In FIG. 5, presentation template 720 is incomplete. This means that the documents have parameters in need of programming. These unprogrammed parameters include timing parameters, sound file parameters, and image file parameters. The multi-media publishing system 726 programs these parameters to create viewable documents 722. To program the template documents, the  
30



publishing system 726 relies on presentation datafiles 724. There is one presentation data file for each unique presentation. A presentation data file 724 contains timing information for each stage of the presentation. In particular, each presentation data file 724 file: specifies exactly how long each viewable document shall persist in the viewing system before it is replaced with the next viewable document; contains file names for each document comprising the sequence of viewable documents so that the documents can be linked together into a presentation; and contains information specifying each document's corresponding image 728 and sound files 730. After the multi-media publishing system 726 has assembled the required information into presentation template 720, a viewable document 722 is ready to become part of a presentation, with the viewable document specifying any sound 732 and image files 734 it needs in the presentation. In one embodiment, the publishing system 726 creates the viewable documents as they are needed by the viewing system during the presentation. In another embodiment, some or all of the viewable documents are prepared before the presentation starts.

As mentioned above, presentation template 720 is incomplete in that it does not contain all the information to create a viewable presentation. However, these template documents outline the basic shell or structure which will make up a particular type of presentation. For example, a particular template may outline that the presentation consists of a series of twelve viewable documents. Further, the template will indicate the set up or configuration of each particular frame. That is, the template will indicate which frames are single, viewable documents; which frames will contain sequential slide shows; which frames will include nested frames, etc. As can be easily be understood, the actual persistence values and image details for each presentation are easily merged into this template, to create a viewable document.

Using presentation templates as the framework or shell for each presentation ensures that timing will be smoothly coordinated. As these templates are pre-established, it is well known that all pre-loading necessary and preprocessing will happen in a coordinated manner to ensure that the presentation will be played without stoppage or delay. The flow diagram of FIGs. 4A-C outline the flow of one template file. It is easily understood that the actual configuration and content of each template could easily be modified. Again, however, the advantage of using templates is to ensure appropriate timing and sequencing of the presentation.

FIG. 6 shows a representative multi-media presentation in accordance with the present invention. Index document 760 starts the presentation in the viewing system. This document specifies an image file 762 that, in one embodiment, displays a countdown message during which image and sound files that are needed for later steps in the sequence are pre-fetched and stored in the client computer on which the viewing system operates. In one version of the

present invention, such image files include JPEG files and GIF files. In another version of the present invention, the image files include animated GIF files. Pre-fetching and loading image and sound files into storage on the client computer system assures that when the files are needed by one of the viewable documents in the presentation sequence, the image or sound file is available without delay. Otherwise, it is possible that when an image file is needed in a sequence it may not become available to viewing system in time for display during the persistence time of the currently viewed document, which may be only a few seconds or less. In some versions of the invention, the persistence time for each viewable document is approximately 67 milliseconds, thus achieving a rate of about 15 images per second. The reason that a document may not be available is that the speed of the connection between the viewing system and the multi-media publishing system can be slow and quite variable. Accurate document delivery times cannot be guaranteed but delivery within a bounded time period can be guaranteed. For this reason image and sound files are pre-fetched and loaded ahead of when they are needed and loaded into temporary storage of the client computer on which the viewing system operates for the current presentation. Typically, the image and sound files are cached in the viewing system's cache.

Returning to FIG. 6A, the persistence time of the countdown document 762 is 20 seconds providing a long time period in which to pre-fetch and cache the needed image and sound files. In one version of the present invention, during this 20 second time period, document 762 displays one or more image files, each image file being timed by the document. Document timing and document persistence are accomplished by invoking a timer which is programmed with the persistence time or a portion of the persistence time. For example, if the persistence time of a document is 20 seconds and the document requires that five images be displayed in the 20 seconds, then a timer is set with the value of 4 seconds or less. At the end of every 4 seconds a new image is displayed and at the end of 20 seconds a new document is requested according to the sequence parameter in the document.

In FIG. 6A, the new document that replaces the viewable document 762 is the index01 document 764. This document first divides the viewing system window into two rows, row0 and row1, and divides the row0 into two frames, frame0 and frame1. Additionally, this document concurrently pre-fetches and loads the image files needed for row0 and row1. Document index01 764 also requests to be replaced with document main 766. This new document divides frame0 into two columns, show0 768 and right01 770, each of which is a viewable document. Documents show0 768 and right01 770 are sized so that they comprise the viewable window in the presentation, leaving the unused portion of row0 and all of row1 hidden. In some

embodiments. sound files are associated with these hidden frames which persist throughout the presentation. In this way a sound file can last through the entire presentation.

In the example shown in FIG. 6, the show0 document 768 specifies a sound file sound0, but the right01 770 document does not because the show0 document controls the presentation. This means that show0 also has the persistence parameter which, in the example, is 7.5 seconds. The document right01 persists as long as it is not replaced with another document. Furthermore, if right01 were to specify a sound file to be played it would conflict with the sound0 file specified by show0 768 because the sound file would be played during the same persistence time as the sound0 file. In some cases, the sound0 file does not last the entire persistence time. This allows the right01 document or the show0 document to specify another sound file to play for the balance of the persistence time. Also during the persistence time of the right01 document, this document requests that the show02 document 776 and any images relating thereto be pre-fetched and loaded into the viewing system's cache. The function of the show01 and other show documents discussed below is to present various image files to viewing system. These images come from GIF files or JPEG files. In some cases, the GIF files can be animated or they can be transparent.

After the 7.5 second time interval expires, show0 requests main01 from the publishing system. Document main01 771 again alters the frame composition of the window in the viewing system to eliminate the two columns and requests that the publishing system create and provide the show01 document 772 and sound file sound1.

The show01 document and sound1 file persist for 7.5 seconds after which main02 774 is requested. This document reconfigures the window to have two columns and requests that show02 776 and right02 778 fill the columns.

Show02 specifies sound file sound2 and persists for 9.5 seconds in the viewing system. During this time show02 776 causes show05 and right05 and show04 786 and right04 788 to be pre-fetched and loaded into the viewing system's cache. After the 9.5 seconds expires, show02 requests main03 780 from the publishing system.

Main03 780 reconfigures the window to remove the columns and requests show03 782 and sound3 to be displayed for 18.5 seconds.

At the expiration of the 18.5 seconds, main04 784 is requested which again reconfigures the window with two columns. Main04 784 requests the document show04 786 and sound4. Show04 persists for 9.5 seconds during which it pre-fetches and loads additional images relating to show05 and right05. Next, show04 requests main05 790 which in FIG. 6B repartitions the window into two frames and requests that show05 792 and right05 794 occupy those frames.

Right05 persists for 10.5 seconds and show05 lasts for as long as right05. Show05 specifies sound5 during its viewing time at the end of which right05 requests main06 796. Main06 796 repartitions the window again and requests document show06 798.

5 Show06 798 specifies sound file sound6 and persists for 10.5 seconds. Next, show06 requests main07 800 to repartition the window and main07 requests two new documents, right07 822 and show07 820.

10 Right07 822 specifies sound file sound7. Show07 820 controls the presentation in this instance and persists for 8.5 seconds. Finally, show07 requests documents show08 824 which persists for 7.5 seconds while right07 stays on the window for another 7.5 seconds because it was not replaced. In this latter case no "main" type of document was used because the window needed no repartitioning.

15 FIG. 7 shows a representative presentation timeline for the multi-media presentation shown in FIG. 6. In the timeline, all time in the presentation must be accounted for. Each show document requires an additional 0.5 seconds to be completely loaded into the viewing system, thus adding 0.5 seconds to each of the times discussed in reference to FIG. 6. Grey01 and Grey02 are the persistent images in the hidden areas or row0 and row1 as partitioned by the main document 765. The timeline also shows sound7 persisting through the view time of both show07 and show08.

20 As described above FIG. 6 shows a representative presentation. For the presentation shown, different images and sound files are allowed, however the partitioning of the viewable window, frame0, and the sequence of changes it undergoes are fixed for this presentation. The particular frames shown in the flow chart of FIG. 4 are also listed on FIG. 7. Furthermore, there is a range of persistence times for each viewable document that can be used for the representative presentation beyond which the presentation will fail to present the sequence as shown. One reason for this is that image and sound files needed for documents specified later in the sequence need to be pre-fetched and loaded into the viewing system's cache. If the persistence times prior to these later documents are substantially altered (reduced), then the time for pre-fetching and loading the image and sound files for these later documents is reduced. Thus the image and sound files may not arrive in time for the document which uses them.

30 Thus each presentation must conform to a set of rules for correct presentation. The rules must take into account the speed of the connection between the client computer system and the server computer system and must govern the persistence times of each document in the presentation, the size of the image and sound files needed at every stage of the presentation and

the size of the window needed to display the image file properly. Each different set of rules prescribes a different presentation and many such presentations can be designed.

Those skilled in the art will further appreciate that the present invention may be embodied in other specific forms without departing from the spirit or central attributes thereof.

5 In that the foregoing description of the present invention discloses only exemplary embodiments thereof, it is to be understood that other variations are contemplated as being within the scope of the present invention. Accordingly, the present invention is not limited in the particular embodiments which have been described in detail therein. Rather, reference should be made to the appended claims as indicative of the scope and content of the present invention.

### CLAIMS

1. An automated multimedia presentation system for displaying a coordinated graphical promotional presentation which is stored in a digital format, the system comprising:

a presentation file having presentation detail information and a presentation template

for use in assembling the coordinated multimedia presentation which can be automatically displayed via a document viewing process, the presentation template outlining a predetermined structure for a portion of the predetermined multimedia presentation and the presentation detail information providing a plurality of presentation details for the coordinated multimedia presentation; and

a presentation management system in communication with the presentation file and the template file for assembling document viewing instructions which are interpreted by the document viewing process to produce the coordinated multimedia presentation.

2. The automated multimedia presentation system of claim 1, wherein the presentation detail information includes the identification of image files and the identification of sound files.

3. The automated multimedia presentation system of claim 1, wherein presentation detail information includes sequence information.

4. The automated multimedia presentation system of claim 3, wherein the predetermined structure for the presentation template follows a predetermined sequence of necessary activities to insure the uninterrupted displaying of the multimedia presentation.

5. The automated multimedia presentation system of claim 1, wherein the document viewing instruction includes pre-loading instructions for directing the document viewing process to concurrently display a first document of the presentation while loading portions of another document.

6. The automated multimedia presentation system of claim 1, wherein the document viewing instructions include appropriate instructions to cause the document viewing process to create a base frame and a nested frame which is overlaid on the main frame, wherein a first document is played in the base frame while a second document is played in the nested frame.

7. The automated multimedia presentation system of claim 1, wherein the presentation detail information includes timing information to insure the uninterrupted displaying of the multimedia presentation.

8. The automated multimedia presentation system of claim 7, wherein the user information allows the presentation management system to utilize appropriate timing information from the presentation file.

9. The automated multimedia presentation system of claim 8, wherein the document viewing instruction includes pre-loading instructions for directing the document viewing process to concurrently display a first document of the presentation while loading another document.

10. The automated multimedia presentation system of claim 1, wherein the presentation file is a distributed database.

11. The automated multimedia presentation system of claim 1, wherein the presentation management system operates on a server, wherein the server receives the requests for a predetermined presentation from potential customers who are in communication with the server.

12. The automated multimedia presentation system of claim 11, wherein the server is in communication with the Internet and the potential customers communicate with the server over the Internet.

13. The automated multimedia presentation system of claim 11, wherein the request includes user information which is communicated to the presentation management system for use in coordinating the automatic display of the predetermined presentation.

14. The automated multimedia presentation system of claim 1, wherein the presentation includes a plurality of documents which are displayed by the document viewing process, each document having image information associated therewith for display.

15. An automated system for generating a set of viewing instructions which can be interpreted by a document viewing process to create a coordinated multimedia presentation which can be viewed by a potential customer, the automated system comprising:

a storage device in communication with a server, the storage device having at least one presentation template and presentation detail information stored therein, the presentation template including a structure applicable to a portion of a coordinated multimedia presentations and the presentation file including presentation detail information for the multimedia presentation; and

a presentation management system operating on the server and in communication with the storage device, the presentation management system for merging the presentation template and the presentation file to create the set of viewing instructions.

16. The automated system of claim 15, wherein the storage device is a distributed database.

17. The automated system of claim 15, wherein the presentation detail information includes the identification of image files and sound files for incorporation into the multimedia presentation by the document viewing system.

18. The automated system of claim 15, wherein the presentation detail information includes timing information.

19. The automated system of claim 15, wherein presentation detail information includes sequence information.

20. A method for generating an automated multimedia presentation which is viewable on a document viewing process, comprising:

receiving a request for the multimedia presentation from a potential client via a client computer;

retrieving a presentation template from a storage device which corresponds to a portion of the multimedia presentation, wherein the template includes a structure for the portion of the multimedia presentation;

locating a presentation data file for the requested multimedia presentation, the presentation data file including presentation detail information; and

merging the presentation data file and the presentation template to create a set of viewing instructions which are interpretable on the document viewing process to create the multimedia presentation.

21. The method of claim 20, wherein the presentation detail information includes timing information, image file information, and sound file information.

22. The method of claim 20, wherein the structure includes a plurality of predetermined steps for the creation of viewing instructions.

23. The method of claim 20, wherein the client computer is coupled to the Internet.



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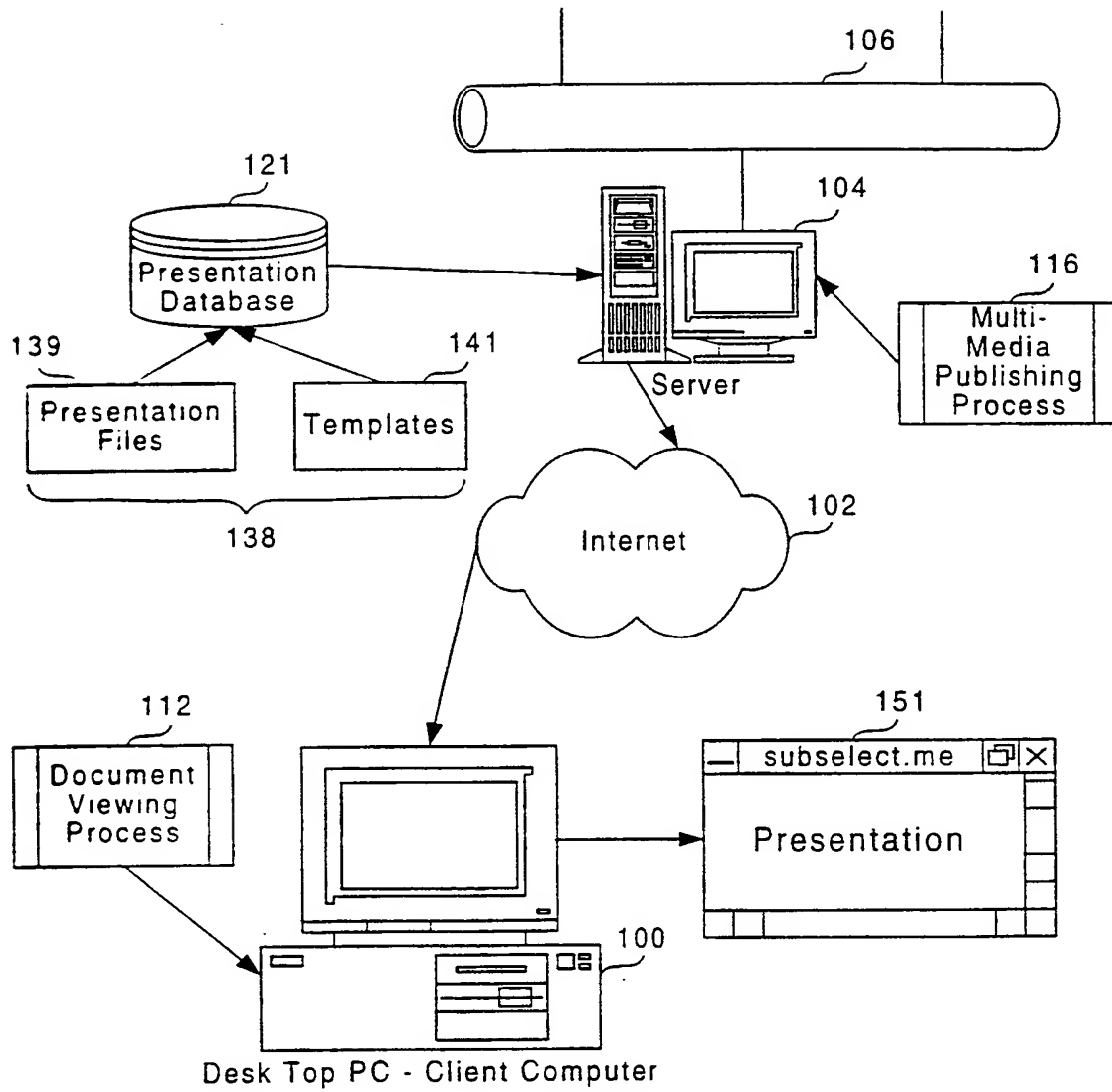


FIG. 1

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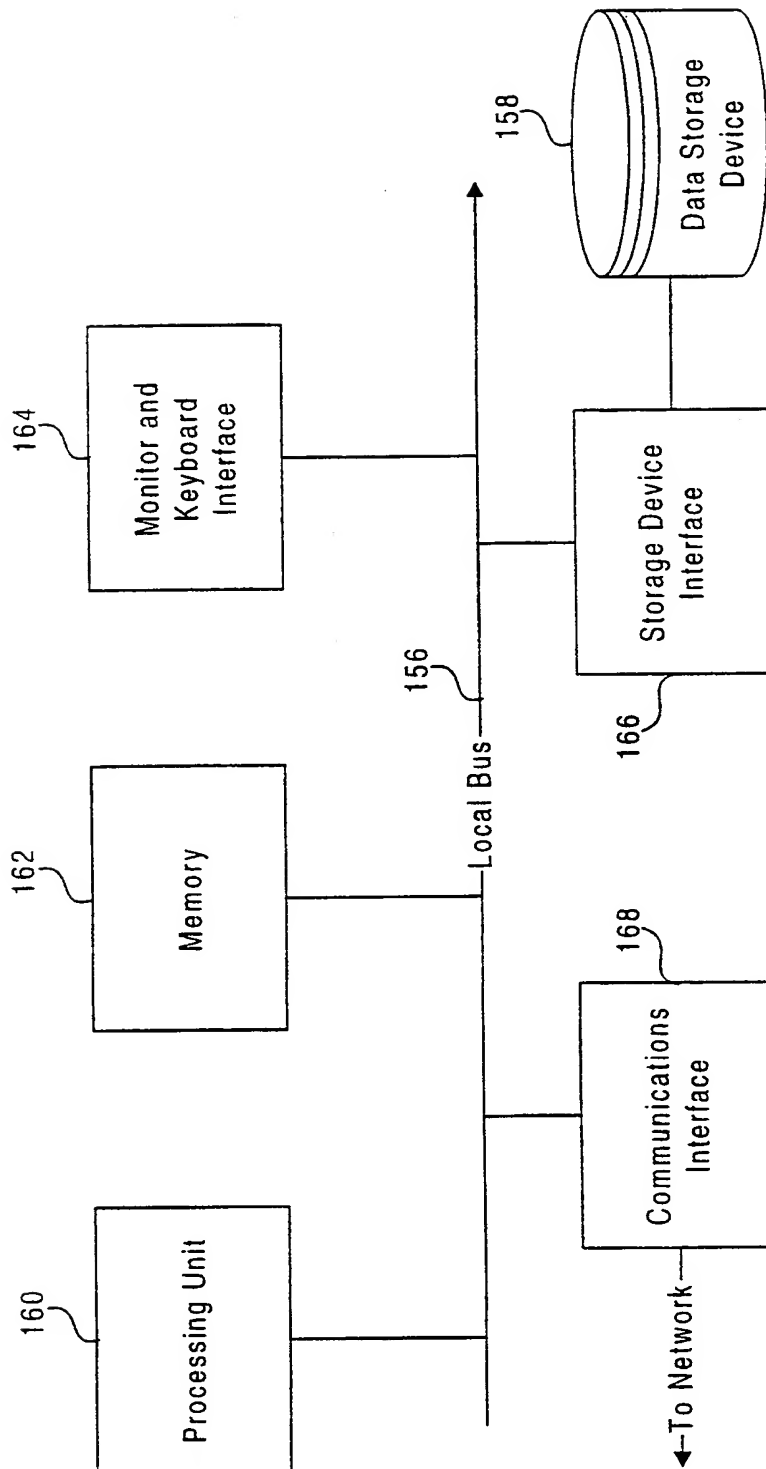


FIG. 1B

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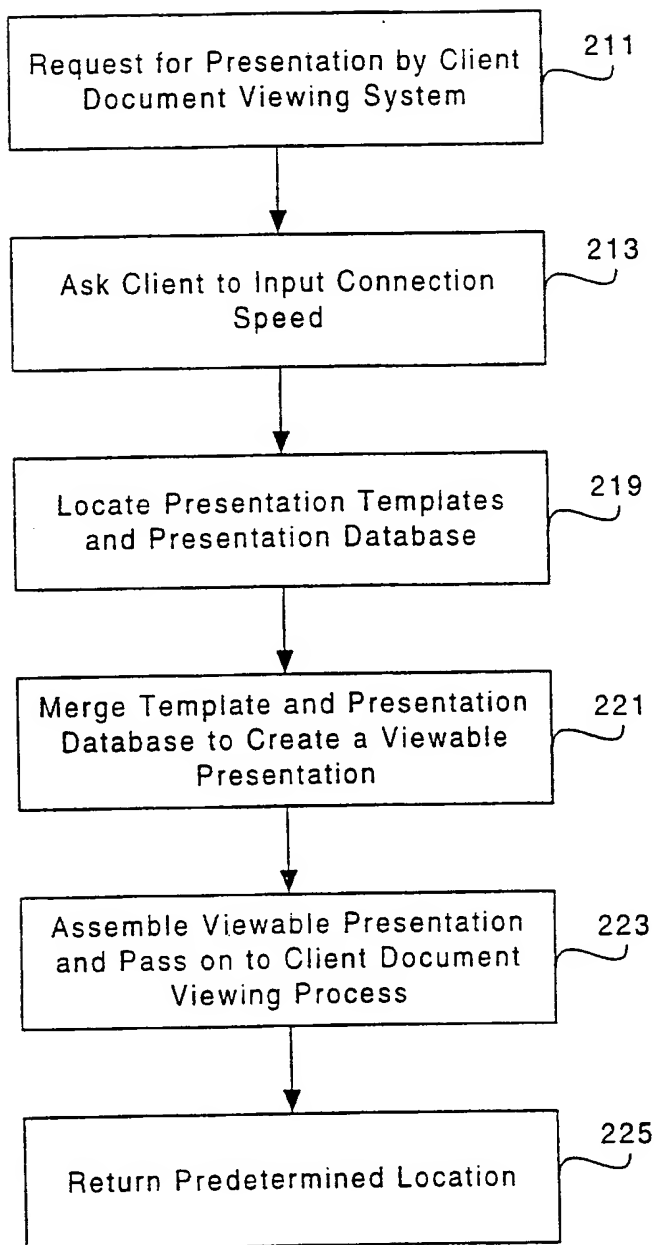


FIG. 2

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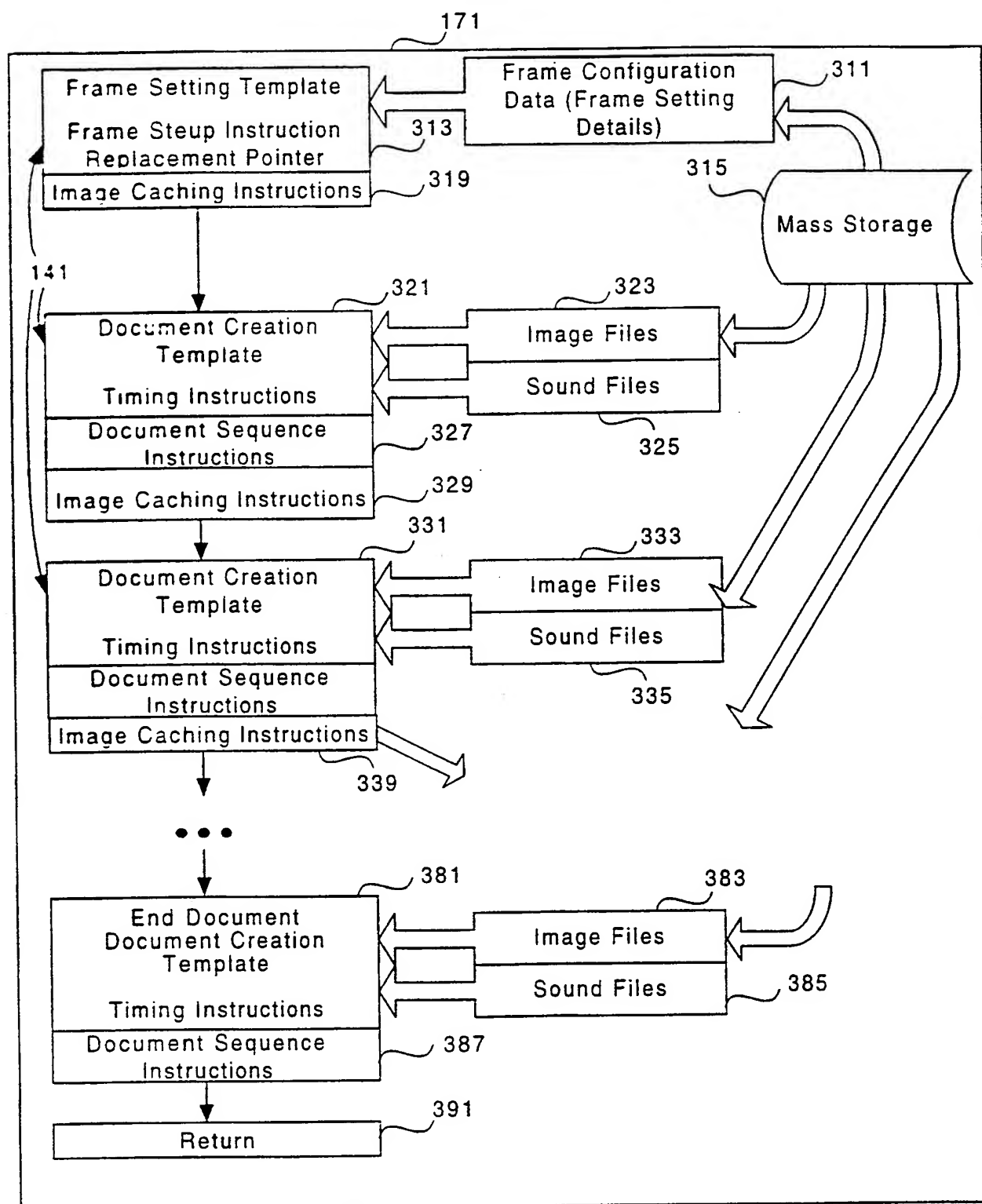


FIG. 3

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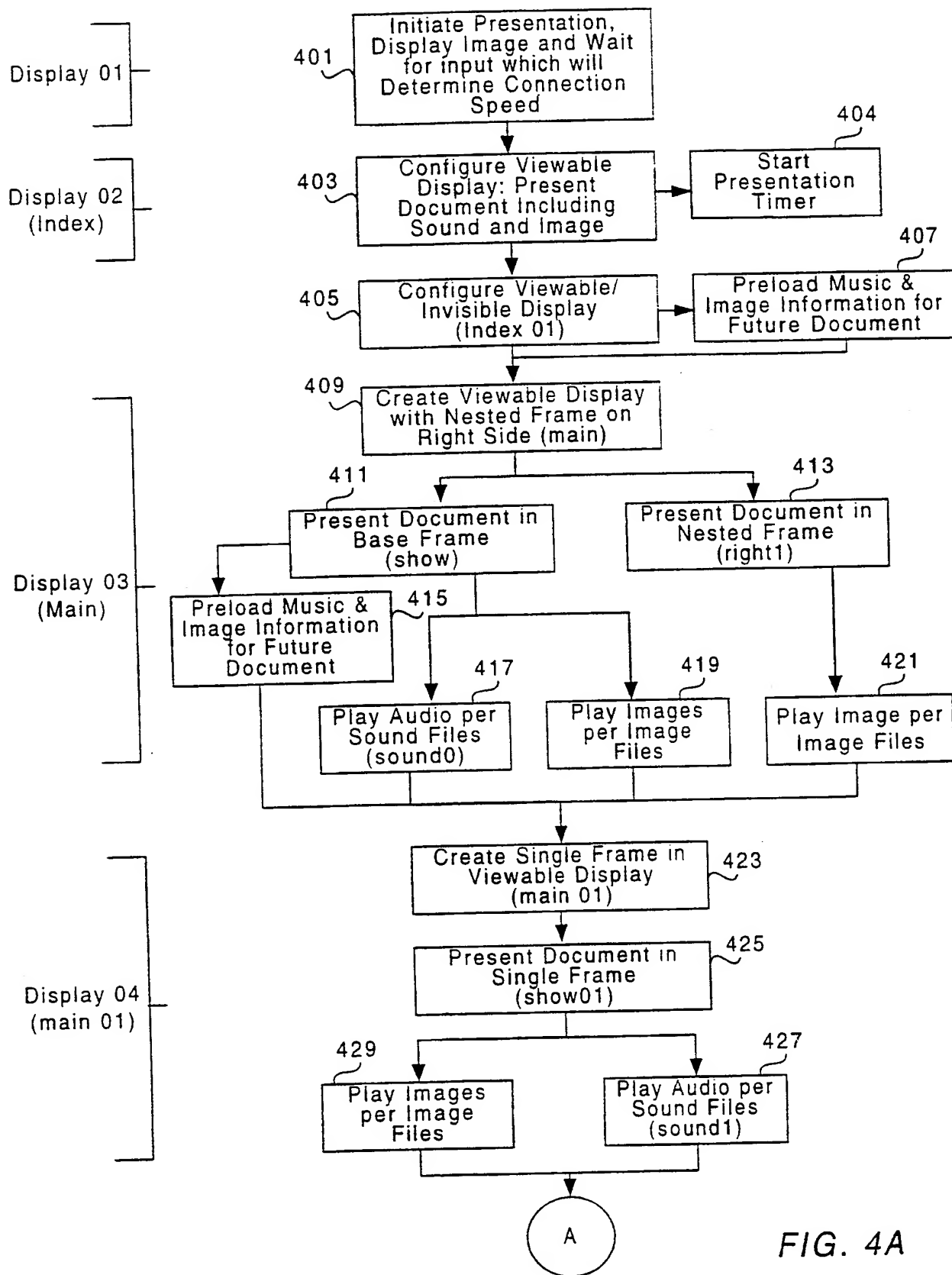


FIG. 4A

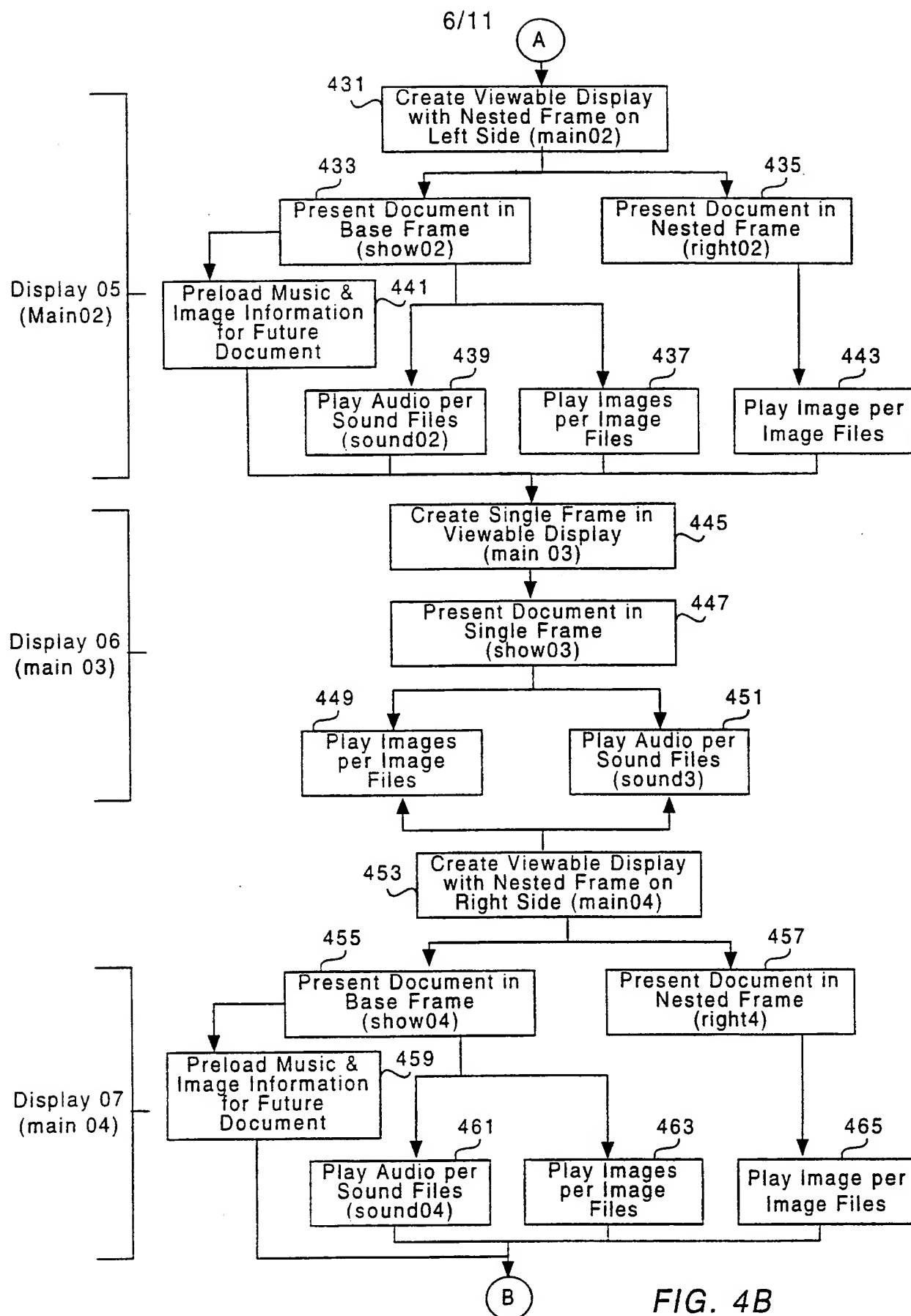
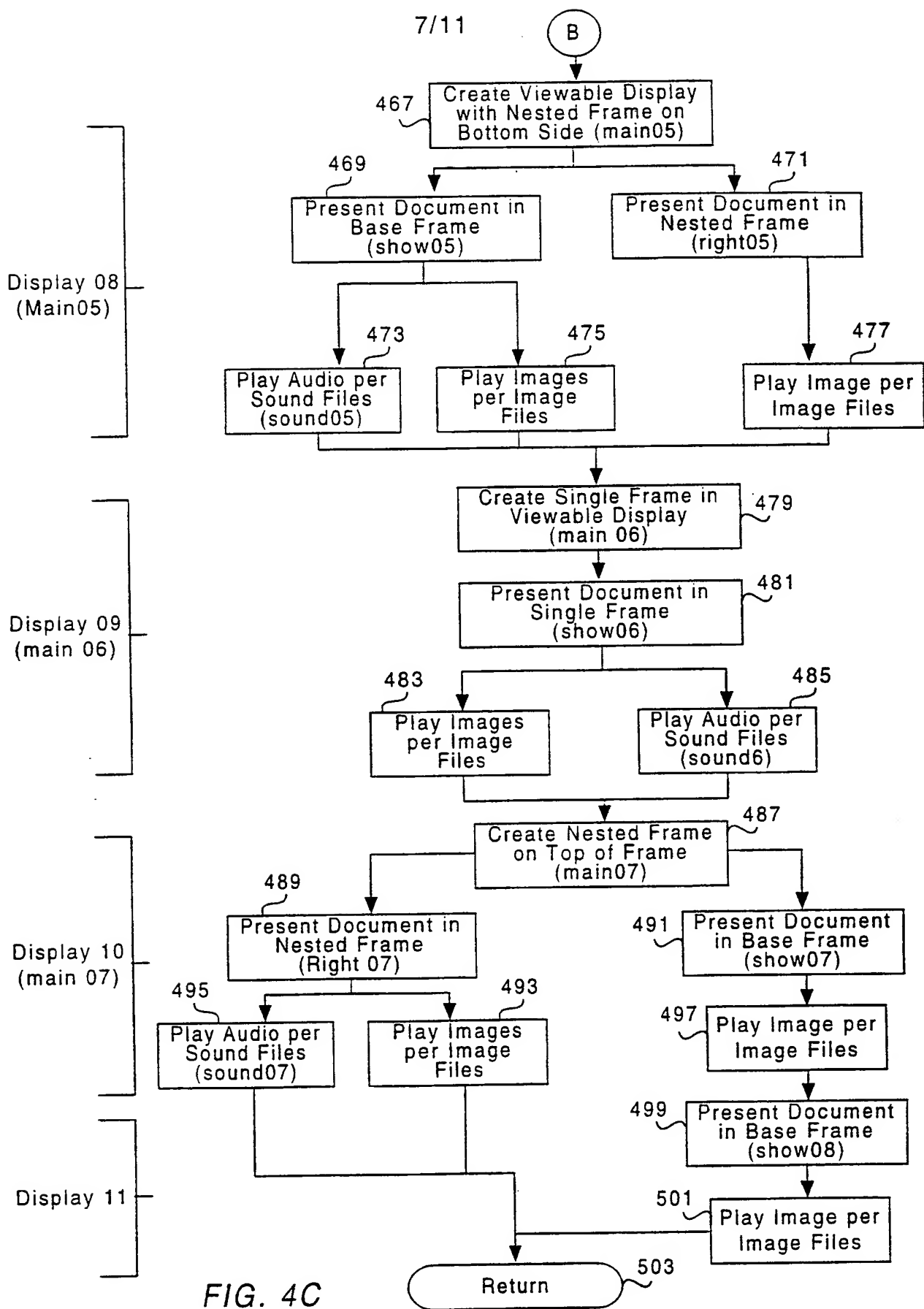


FIG. 4B



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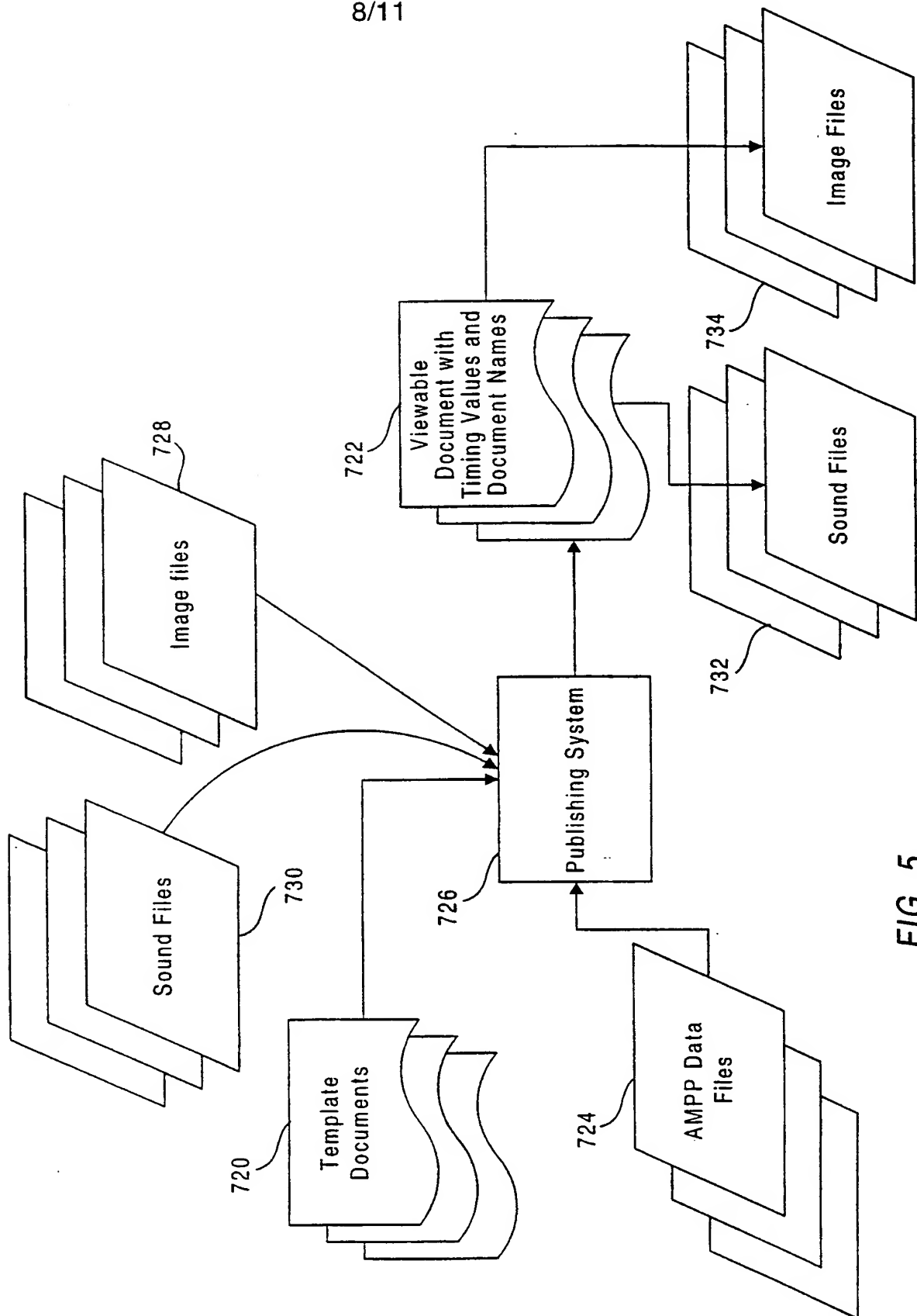
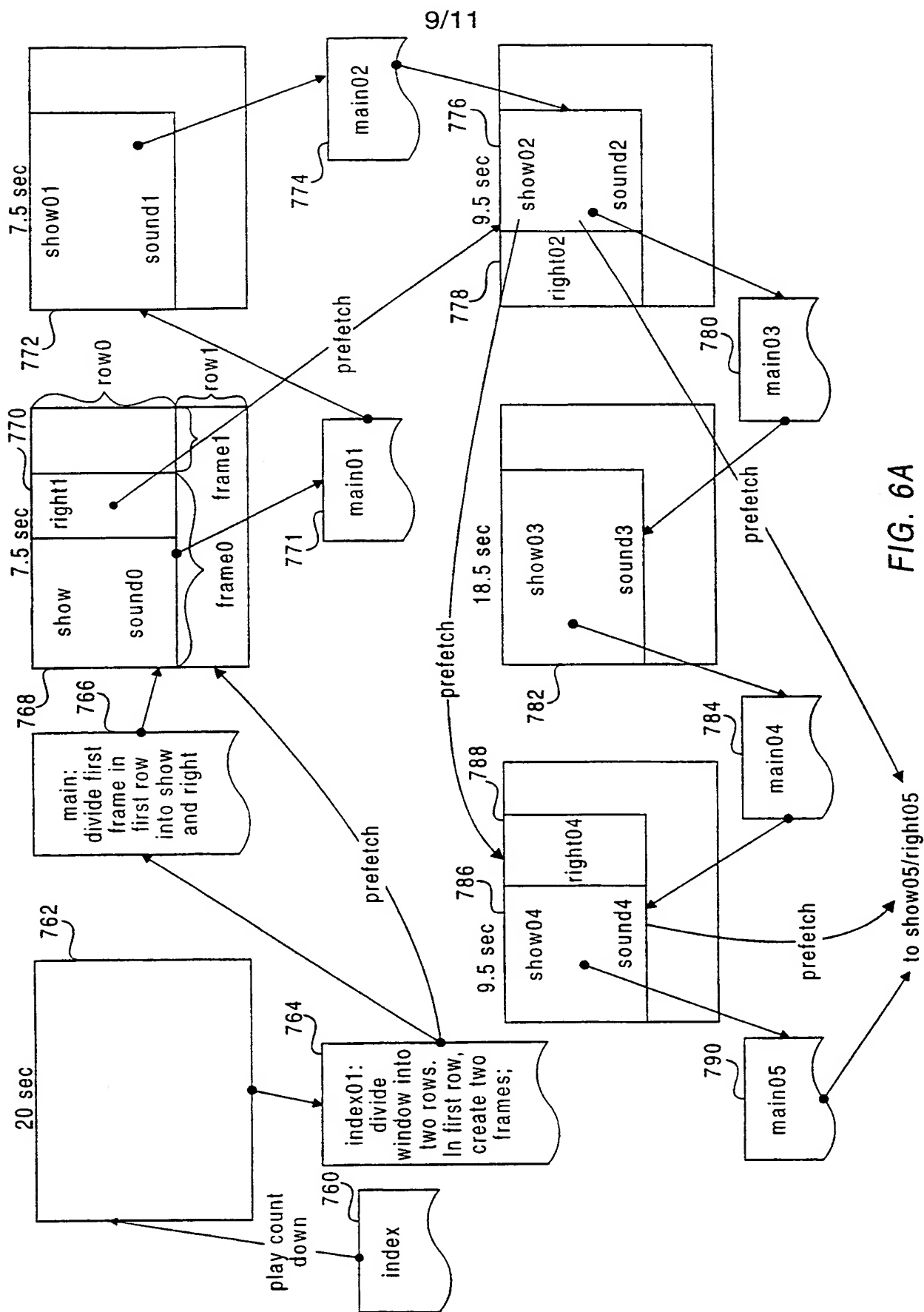


FIG. 5





10/11

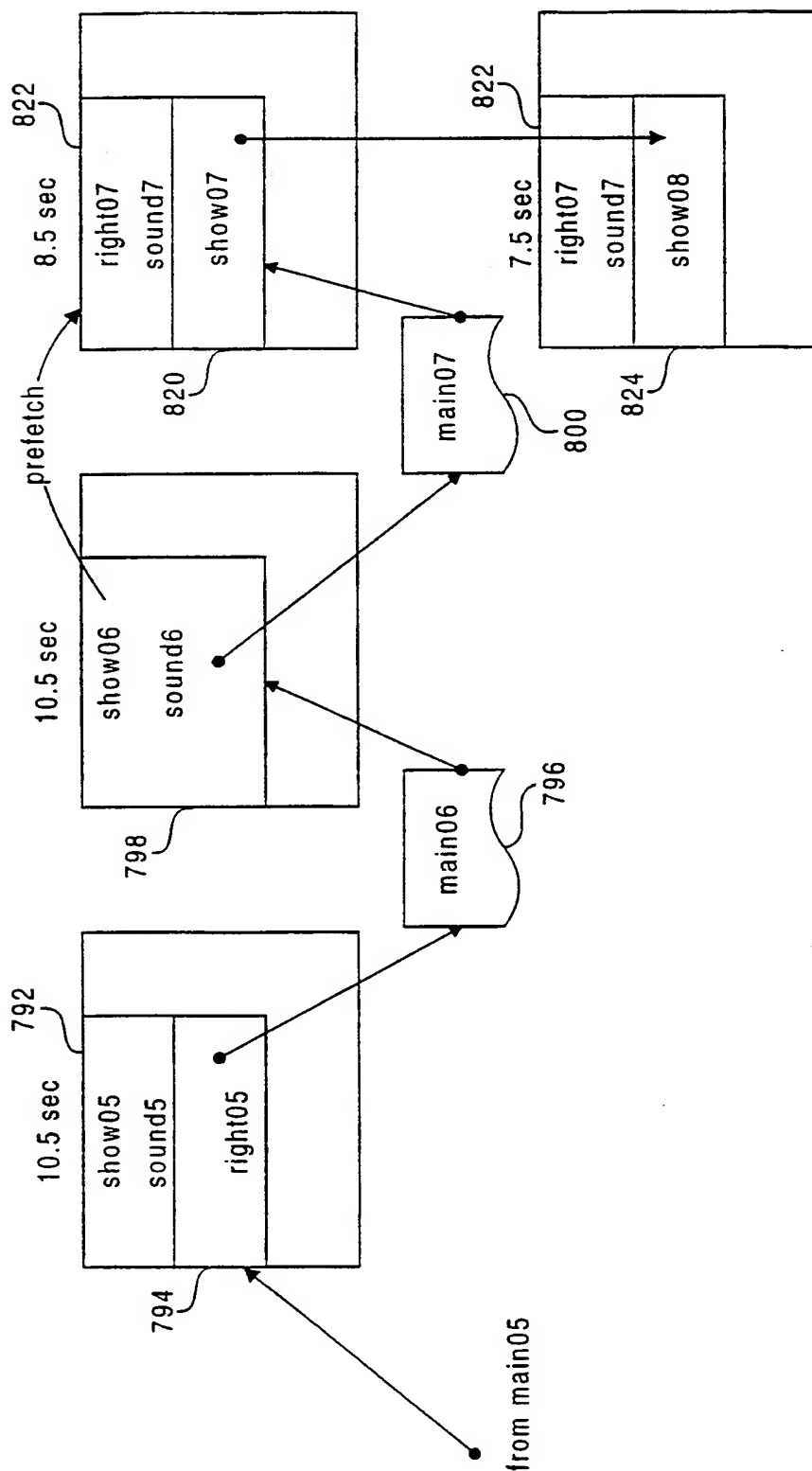


FIG. 6B

11/11

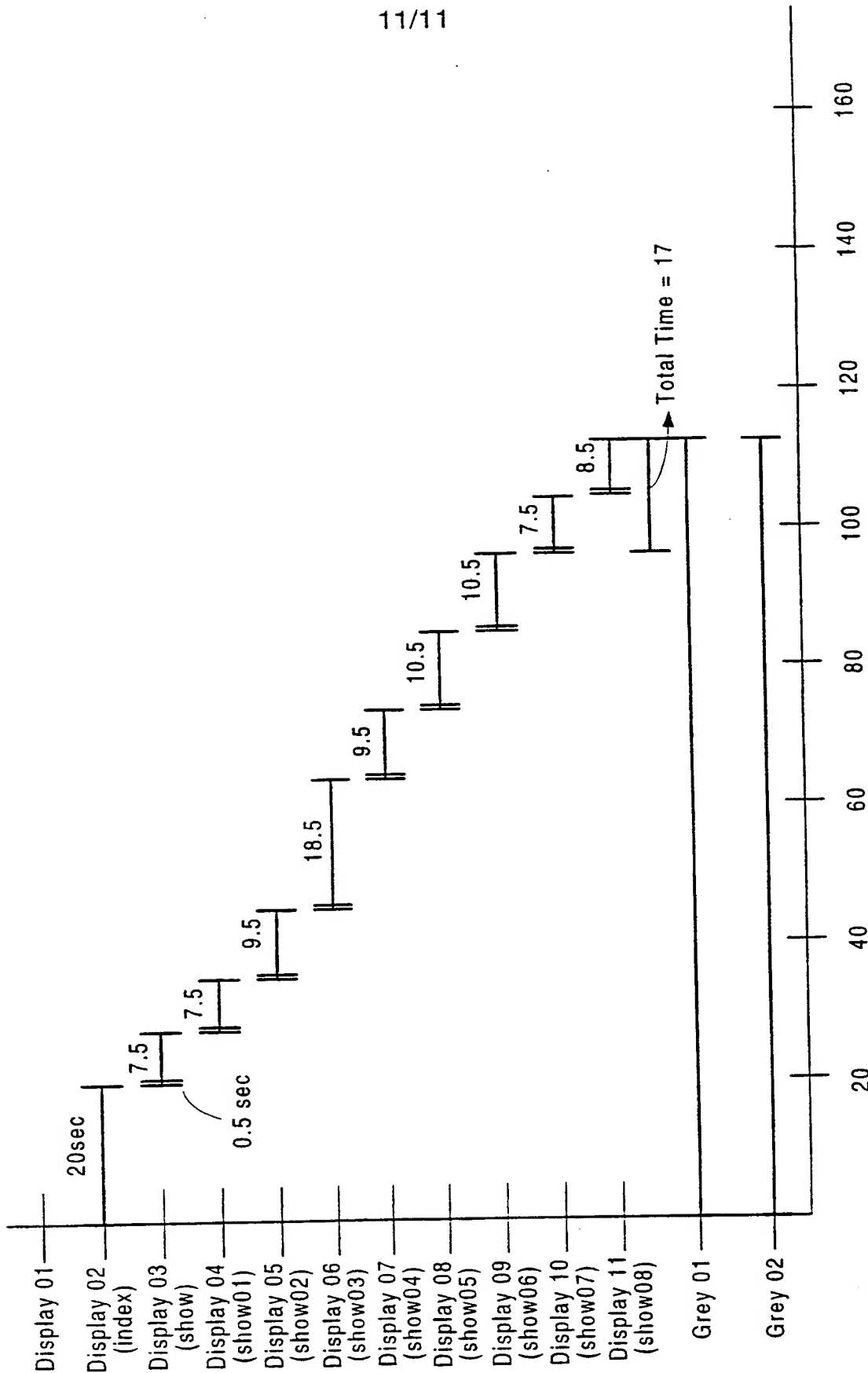


FIG. 7

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US00/30997

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) :G01C 21/00; G06G 7/78; G06F 7/00, 15/00, 15/16

US CL :Please See Extra Sheet.

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 701/201; 345/302; 709/231

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

ACM

search terms: multimedia presentation, template

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,948,040 A (DELORME et al) 07 September 1999, whole document.	1-23
-- Y		1-23
Y	US 5,751,968 A (COHEN) 12 May 1998, whole document.	1-23
A	US 5,861,881 A (FREEMAN et al) 19 January 1999, whole document.	1-23



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:	*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
*A* document defining the general state of the art which is not considered to be of particular relevance	*X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
*E* earlier document published on or after the international filing date	*Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
*L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	*Z* document member of the same patent family
*O* document referring to an oral disclosure, use, exhibition or other means	
*P* document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

21 FEBRUARY 2001

Date of mailing of the international search report

09 APR 2001

Name and mailing address of the ISA/US  
Commissioner of Patents and Trademarks  
Box PCT  
Washington, D.C. 20231

Facsimile No. (703) 305-3230

Authorized officer

HEATHER HERNDON

Telephone No. (703) 305-3900

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US00/30997

A. CLASSIFICATION OF SUBJECT MATTER:  
US CL :

701/201; 345/302; 709/231